UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,787	03/08/2001	Rahul Khanna	042390.P9141	8348

7590	07/27/2006		EXAMINER

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EXAMINER
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ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 April 2006</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,10,15-17,19-21 and 23* is/are rejected.

7)☒ Claim(s) *11-14,18,22 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is in response to Applicants' Amendment ("Amendment") to Office

Action dated February 10, 2006, faxed April 28, 2006.

1-1.   Claims 1, 4-6, 9,14-19, and 21-23 have been amended. Claims 1-24 are pending.

1-2.   Claims 1-24 have been examined.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

3.   Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement. The claims contains subject matter which was not described

in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventors, at the time the application was filed, had possession of the claimed invention.

3-1.   Claim 1 recites the limitation "*dynamically* generating an object-oriented abstraction

corresponding to a root bus" in line 3 of the claim. This limitation does not appear to have

support in the original disclosure.

As described in lines 6-10 of page 5, "During the initialization process of a platform, a

core dispatcher loads a PCI bus plug-in (PPI) for each entity that can create a root bus. When the

plug-in for an entity is loaded, it produces a GUIDed object called a GRB (GUID of PPI for Root

Bus) that provides an abstracted representation of the root buss's configuration and resources."

Therefore, the above-recited limitation does not appear to have support in the original disclosure.

3-2.   Claims not specifically rejected above are rejected as being dependent on a rejected

claim.

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

5.   Claims 7 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

5-1.   Claim 7 recites the limitation "said plurality of methods" in line 3 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

5-2.   Claim 23 recites the limitation "the resources" in line 5 of the claim. There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this
> or a foreign country, before the invention thereof by the applicant for a patent.

7.   Claims 1-6, 9, 10, 15-17, 19-21, and 23 are rejected under 35 U.S.C. 102(a) as being

anticipated by The FreeBSD Documentation Project (hereafter FreeBSD), "FreeBSD

Architecture Handbook, Chapter 14 Newbus", August 2000, pages 194-198.

7-1.   Regarding claim 1, FreeBSD discloses a method comprising:

dynamically generating (dynamic attaching. Page 195, the first line) an object-oriented

abstraction (Newbus is the implementation of a new architecture based on abstraction layers.

Page 194, the last paragraph) corresponding to a root bus (a device tree lay-out. Page 195, line

4) referencing a method that obtains and/or generates configuration and resource allocation

information for the root bus and a subordinate bus connected to the root bus (Each device in the

system has a table of methods which it supports. The system and other devices uses those

methods to control the device and request services. Page 195, the last paragraph); and

registering the method referenced in the object-oriented abstraction via a data structure

stored in a memory (When a device is attached to a driver during auto-configuration, it uses the

method table declared by the driver. The interface would be stored in a methods file. Page 196,

paragraphs 1-2).

7-2.   Regarding claim 2, FreeBSD further discloses wherein the object-oriented abstraction

comprises one of a C++ object or Java object (an extensible "object-based programming" model.

Page 195, the last paragraph).

7-3.   Regarding claim 3, FreeBSD further discloses wherein the root bus comprises a PCI bus

(host-to-PCI bridges (suggests a PCI root bus). Page 195, lines 5-8).

7-4.   Regarding claim 4, FreeBSD further discloses comprising enumerating the root bus and

said subordinate bus through use of the method that is registered (A device_state_t type, which is

an enumeration, device_state. Page 197, lines 26-27).

7-5.   Regarding claim 5, FreeBSD further discloses wherein the object-oriented abstraction

includes at least one variable for storing information, further comprising storing configuration

information derived during enumeration of the root bus into said at least one variable (the nexus

is the only part of the Newbus system which knows about all resources. Page 195, lines 17-18).

7-6.   Regarding claim 6, FreeBSD further discloses comprising allocating resources for the

root bus, the subordinate bus, and a device attached to the root and subordinate busses (resource

allocation mechanism. Page 195, lines 33-34); and

        storing information corresponding to resources that are allocated in said at least one

variable for storing information (the nexus is the only part of the Newbus system which knows

about all resources. Page 195, lines 17-18).

7-7.   Regarding claim 9, FreeBSD discloses a method for defining resource configuration

information in a system that includes a plurality of root busses, comprising:

        identifying each of the plurality of root busses (host-to-PCI bridges (suggests PCI root

buses). Page 195, lines 5-8);

        defining an object oriented representation of each root bus (an extensible "object-based

programming" model. Page 195, the last paragraph) comprising a set of components (a device

tree lay-out. Page 195, line 4) that includes references to a plurality of methods that obtain

and/or generate configuration and resource allocation information for that root bus and at least a

subordinate bus connected to the root bus (Each device in the system has a table of methods

which it supports. The system and other devices uses those methods to control the device and

request services. Page 195, the last paragraph);

        assigning a bus identifier for the at least subordinate bus (a device tree lay-out (suggests

individually identifiable device/bus). Page 195, line 4) through use of an enumeration process

that implements one or more of the methods referenced by the object oriented representation of

the root bus (When a device is attached to a driver during auto-configuration, it uses the method

table declared by the driver. Page 196, paragraph 1).

wherein each of the foregoing operations is performed via execution of machine-

executable instructions by the system (The system and other devices uses those methods to

control the device and request services. Page 195, the last paragraph).

7-8. Regarding claim 10, FreeBSD further discloses wherein the object oriented

representation includes a globally unique identifier (GUID) for each root bus (a device tree lay-

out (suggests individually identifiable device/bus, i.e., GUID). Page 195, line 4).

7-9. Regarding claim 15, FreeBSD further discloses comprising:

determining resource requirements for the at least subordinate bus; allocating the

resource requirements for the at least subordinate bus (asks its parent to map its resources. Page

195, lines 17-18); and

setting resources for the at least subordinate bus (a resource is allocated. Page 195, lines

33-34).

7-10. Regarding claim 16, FreeBSD further discloses wherein the at least subordinate bus has a

peripheral device connected to it, and further wherein determining the resource requirements for

the at least subordinate bus includes determining the resource requirements of a peripheral

device attached to the at least subordinate bus (Each device in the Newbus architecture asks its

parent to map its resources. Page 195, lines 17-18).

7-11. Regarding claim 17, FreeBSD further discloses comprising:

allocating resources for the root bus based in part on the resources of the at least

subordinate bus; and setting the resources for the root bus (a resource is allocated. Page 195,

lines 33-34).

7-12. Regarding claim 19, this article of manufacture claim includes equivalent method

limitations as in claim 1 and is anticipated using the same analysis of claim 1.

7-13. Regarding claim 20, FreeBSD further discloses wherein the computer- executable

instructions comprises one or more software modules including a root bus driver (When a device

is attached to a driver during auto-configuration, it uses the method table declared by the driver.

Page 196, paragraph 1).

7-14. Regarding claim 21, FreeBSD further discloses wherein execution of the instructions

further performs operations comprising assigning a bus identifier for the subordinate bus (a

device tree lay-out (suggests individually identifiable device/bus). Page 195, line 4) through use

of an enumeration process that implements the method referenced by the object oriented

abstraction of the root bus (When a device is attached to a driver during auto-configuration, it

uses the method table declared by the driver. Page 196, paragraph 1).

7-15. Regarding claim 23, FreeBSD further discloses wherein execution of the instructions

further performs the functions of:

determining resource requirements for the subordinate bus; allocating the resource

requirements for the subordinate bus (asks its parent to map its resources. Page 195, lines 17-

18); and

assigning the resources that are allocated to the root bus that is a parent of the subordinate

(a resource is allocated. Page 195, lines 33-34).

Allowable Subject Matter

8. Claims 11-14, 18, 22, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants' Arguments

9. Applicants argue the following:

(1) "FreeBSD merely discloses 'dynamic attach' which is dynamically attaching a device to a driver (FreeBSD, page 196, top paragraph), not dynamically generating an object oriented abstraction." (Page 7, paragraph 6, Amendment).

(2) "Using a method table is not equivalent to registering the method. Registering the method table includes storing information in memory using a handle and a pointer to the object's memory location." (Page 7, paragraph 6, Amendment).

Response to Arguments

10. Applicants' arguments have been fully considered.

10-1. Applicants' argument (1) is not persuasive. The limitation, "*dynamically* generating an object-oriented abstraction" in claim 1, does not appear to have support in the original disclosure as detailed in item **3-1** above.

10-2. In response to Applicants' argument (2) that the references fail to show certain features of Applicants' invention, it is noted that the features upon which applicant relies (i.e., storing

information in memory using a handle and a pointer to the object's memory location) are not

recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988

F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The

Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be

directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the

organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day
January 31, 2006